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A New Neoschöngastia (Acarina: Trombiculidae) from Western Kansas and Eastern Colorado.[1, 2]

By D. A. CROSSLEY, JR., and RICHARD B. LOOMIS

Studies of nymphs of the chigger genus *Neoschöngastia* revealed the presence of two distinct types in Kansas. Subsequent study of larvae revealed less conspicuous features correlated with the nymphal types. One of the species seems to be *Neoschöngastia americana* (Hirst), while the second is herein named *Neoschöngastia brennani*.

The known range for *Neoschöngastia americana*, excluding the supposed subspecies *N. a. solomonis* Wharton and Hardcastle from the Pacific area, includes Guatemala and Jamaica (Brennan, 1951), Mexico (Hoffman, 1950: 153) and the United States from Virginia and South Carolina (Wharton and Hardcastle, 1946: 289) west to Kansas. *Neoschöngastia americana* has been examined from northwestern and eastern Kansas, Missouri, Oklahoma, Arkansas, Louisiana, and Texas, and was common on birds and rabbits. *Neoschöngastia brennani* was taken in southwestern Kansas and eastern Colorado, and has been recovered only from birds.

In the following description the terminology is essentially that of Wharton *et al.* (1951) with some minor changes; see Audy (1952: 152) for the use of tarsala and microtarsala in place of spur and microspur on the tarsi. Measurements are given in microns.

[1] This investigation was supported in part by a research grant (E-476) from the National Microbiological Institute of the National Institutes of Health, Public Health Service.

[2] Contribution No. 896 of the Department of Entomology, University of Kansas.

Neoschöngastia brennani new species [3]

Diagnosis. Larva: Similar to *Neoschöngastia americana* (Hirst) but differs in having two genualae I, sensilla with many small setules, scutal setae more plumose, cheliceral base with punctae fewer and larger and restricted to basal portion, legs with punctae fewer and larger especially on distal segments.

Description of larva. Body: Holotype 412 by 369 (partially engorged), color orange to pale red in life. Eyes 2/2, red in life, anterior eye larger, ocular plate well defined, distance across both eyes of one side in holotype 26.

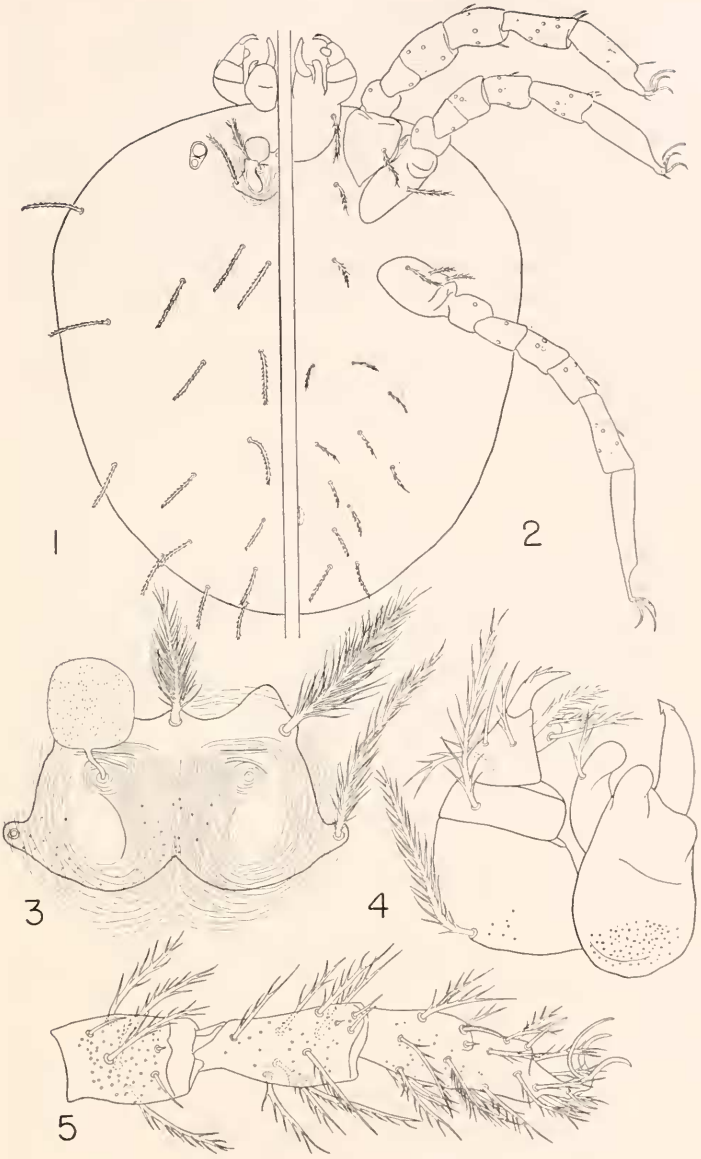
Dorsal setal formula 2-8-6-6-4-4-2, total 32; humeral seta measures 44, anterior dorsal seta 46, posterior dorsal seta 28. Ventral setal formula 2-2- plus 16 preanal, 6 postanal, total 26; sternal seta measures 35, anterior ventral seta 27, posterior ventral seta 31. Total body setae 58.

Scutum: Shape roughly rectangular, wider than long, anterior and lateral margins sinuous as illustrated, posterior margin deeply indented at the midpoint. Punctae large, sparse, mostly restricted to posterior portion. Cuticular striae covering the majority of the scutum, only the anterior portion free. Scutal setae, especially the AM and ALs, with many long fine branches; sensillary bases closer to anterior margin than posterior. Sensillae strongly capitate and with fine setules. Scutal measurements of holotype: AW—47, PW—70, SB—31, ASB—18, PSB—26, AM—32, AL—40, PL—45, AP—28, S—25. Averages and extremes of ten paratypes: AW—45 (42–50), PW—65 (57–71), SB—31 (28–34), ASB—17 (14–20), PSB—27 (25–28), AM—30 (28–32), AL—41 (36–45), PL—47 (43–50), AP—29 (27–32), S—27 (23–31).

[3] Named in honor of Dr. James M. Brennan, National Institutes of Health, Hamilton, Montana, in appreciation of his excellent studies of North American trombiculids and for the aid given to the authors in identification of chigger mites.

EXPLANATION OF PLATE

Neoschöngastia brennani larva. Fig. 1, dorsal view of body. Fig. 2, ventral view of body. Fig. 3, scutum. Fig. 4, dorsal view of left side of gnathosoma. Fig. 5, lateral view of distal segments of Leg I.



Figs. 1–5.

Gnathosoma: Cheliceral blade long and slender, slightly curved, with one prominent dorsal tricuspid cap and a small ventral projection. Cheliceral base roughly rectangular, with punctae large and restricted to the basal portion. Galeal seta with one to three branches (two branches in holotype). Capitular sternum with one pair of branched setae. Palpal femur and genu each with one branched seta; tibia with dorsal and ventral setae branched, lateral seta nude or with one or two branches (nude in holotype); tarsus with seven branched setae and a tarsala (7 μ). Palpal claw curved, with a stout central prong and two accessory prongs.

Legs: Leg I coxa, trochanter, and basifemur each with one branched seta; telofemur with five branched setae; genu with four branched setae, two genualae (three on one genu of one paratype) and a microgenuala; tibia with eight branched setae, two tibialae and a microtibiala; tarsus with approximately nineteen branched setae, tarsala (12–15 μ), microtarsala, pretarsala, and subterminala (no parasubterminala). Leg II coxa and trochanter each with one branched seta; basifemur with two branched setae; telofemur with four branched setae; genu with four branched setae and a genuala; tibia with six branched setae and two tibialae; tarsus with approximately seventeen branched setae, a tarsala (13–15 μ), and a pretarsala. Leg III coxa with three (rarely four) branched setae; trochanter with one branched seta; basifemur with two branched setae; telofemur with three branched setae; genu with three branched setae and a genuala; tibia with six branched setae and a tibiala; tarsus with approximately fourteen branched setae, the longer setae with attenuated tips; occasionally with branches restricted to the basal portion resembling mastitarsalae.

Punctae of legs large and prominent, especially on distal segments.

Type material. Holotype, KU slide number 7201, and 28 paratypes, KU 7202–7229, from 10½ miles west of Hardtner, Barber County, Kansas, from four red-headed woodpeckers, *Melanerpes erythrocephalus* (Linnaeus), field no. RL520726-9, shot on July 26, 1952, by R. B. Loomis and D. A. Crossley, Jr.

The holotype and paratypes are deposited in the Snow Entomological Museum, University of Kansas. Paratypes will be sent to the United State National Museum; the Rocky Mountain Laboratory, Hamilton, Montana; the British Museum (Natural History); Dr. G. W. Wharton, University of Maryland; the South Australian Museum; and the Museum National d'Histoire Naturelle, Paris, France.

Additional specimens examined (in the Snow Entomological Museum at the University of Kansas). *Neoschöngastia brennani.* Total 29 larvae, as follows: KANSAS. *Barber County:* 10½ miles west of Hardtner, *Tyrannus tyrannus,* July 27, 1952, KU 7230; *Chondestes grammacus,* July 26, 1952, KU 7231. *Seward County:* 12 miles northeast of Liberal, *Muscivora forficata,* September 9, 1948, KU 7232–7234. COLORADO. *Boulder County:* 8 miles north, 2 miles west of Boulder, *Chondestes grammacus,* August 13, 1947, KU 7235–7251. *Lincoln County:* 4 miles east of Limon, *Calamospiza melanocorys,* August 15, 1947, KU 7252–7258.

Neoschöngastia americana. Total, 284 larvae as follows: KANSAS. Anderson Co. (13); Bourbon Co. (1); Douglas Co. (201); Jefferson Co. (5); Montgomery Co. (7); Rawlins Co. (5) and Shawnee Co. (3); these specimens will be reported in detail by Loomis in a forthcoming paper. MISSOURI. *Jasper Co.:* 6 mi. N Carthage, *Sylvilagus floridanus,* Sept. 4, 1947 (10). OKLAHOMA. *Delaware Co.:* 4 mi. NW Grove, Sept. 11, 1947, *Sceloporus undulatus* (3) and *Richmondena cardinalis* (4). ARKANSAS. *Washington Co.:* Fayetteville, *Toxostoma rufum,* Sept. 10, 1947 (3). LOUISIANA. *Caddo Parish:* Rhodessa, *Vireo griseus,* March 27, 1948 (18). TEXAS. *Bexar Co.:* Camp Bullis, 17 mi NW San Antonia, *Lepus californicus,* July 15, 1953 (1). *Cameron Co.:* 5 mi. SW Brownsville, *Crotophaga sulcirostris,* Sept. 5, 1952 (1). *Zavala Co.: Chondestes grammacus,* June 25, 1952 (1); *Geococcyx californicus,* Sept. 18, 1952 (2), Oct. 20, 1952 (2); *Pyrrhuloxia sinuata,* June 17, 1952 (4).

Remarks. In Brennan's (1951) key to the species of *Neoschöngastia, brennani* will key out to *americana,* from which it

may be separated by the characters noted in the diagnosis. The best of these characters appears to be the two genualae I of *brennani,* as opposed to three genualae I of *americana.* In the type series of *brennani,* one of twenty-nine specimens had three genualae I on one leg and two on the other. No such deviations were found among the other specimens referred to this species, nor have we seen any deviations from three genualae I among series of *americana.*

Differences between the two species were first noted by L. J. Lipovsky; its distinctiveness is substantiated by examination of nymphs, where differences between these species are more striking than in the larvae. Nymphs of *brennani* have flagelliform sensillae and lack teeth on the chelae, in contrast to sub-clavate sensillae and pronounced teeth on the chelae of *americana* from eastern Kansas. A complete description of the nymphal stage will be given by one of us (Crossley) at a later date.

Acknowledgments. For aid in obtaining larvae of *Neoschöngastia,* we wish to thank Dr. Richard B. Eads, Principal Entomologist of the Texas State Department of Health; and former members of the University of Kansas Chigger Project, especially Mr. L. J. Lipovsky. We also express our appreciation to Dr. Charles D. Michener for reading the manuscript.

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